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Stad-Type Cooperative Learning Design to Develop Student Online Learning Activities

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Abstract

This study is one of the ways to compile development research, namely the design stage. The research objective is to produce conceptual and procedural models and to identify components of online learning that apply the STAD (Student Team Achievement Division) type of cooperative learning method. The use of internet media in the form of social media can support online learning. Cooperative learning is an alternative to be applied using online learning. Use of social media online if designed properly will help active and fun learning. The design of cooperative learning using online is carried out in 6 (six) stages, namely the stage of conveying goals and motivating; deliver material, explore group work, conclude and reinforce, evaluate and award group stages.

Keywords : Cooperative Learning; Leaening activities; Online Learning

INTRODUCTION

During the COVID-19 pandemic, which required lectures to be conducted online, various problems were encountered in its implementation, including the preparation of lecturers in teaching. The transfer of the traditional face-to-face learning system to an online learning system without proper preparation will cause complaints from students. The use of online learning is very urgent to be studied, as a form of support to realize awareness of the importance of developing an effective learning system in higher education.

The development of Information and Communication Technology (ICT) has an influence on the implementation of education in Indonesia and even in the world. The existence of the covid pandemic requires an online learning system (on the network) to be applied from basic education to university. Online learning is learning that utilizes the internet network. The use of the internet has a major influence on the development of education today. Within the scope of higher education, lecturers and students have used the internet for communication,

downloading lecture materials, storing and sharing information and forming a learning community through various links in *zoom, meet rooms, wa groups*, and others.

Learning is a process that is deliberately designed to create learning activities within the individual (Perbadi, 2009. p.11). In Law Number 12 of 2012, concerning higher education, Article 4 paragraph 12 states that learning is a process of student interaction with lecturers and learning resources in a learning environment (Anonymous, 2012, p.4). Learning is expressed as the delivery of information and activities that facilitate the achievement of the learning objectives desired by students (Branch, 2009, P.186). Learning activities are in the form of a series of learning activities which are interactions between students and the learning environment. Molenda et al stated that the learning environment in the form of physical facilities, psychological atmosphere, learning technology, media and methods (Smaldino et al., 2010).

Online learning certainly requires a lot of careful preparation in various components of learning, including materials, media, strategies, evaluation tools and learning support tools. In practice, the unpreparedness of online learning is a problem. The transfer of the traditional face-to-face learning system to an online learning system without proper preparation must be done during this covid pandemic condition. This resulted in complaints from lecturers and students. Student complaints are generally related to technicalities such as the internet network which is sometimes unstable due to the geographical location which is still far from the reach of cellular and internet signals, the use ofapplications *platform* that are poorly understood Non-technical complaints in learning include getting bored with learning patterns that only move face-to-face learning into virtual face-to-face learning and only give assignments.

Learning problems in other universities that also often occur in lecturers who teach courses in addition to technical problems are also related to the ability of lecturers to design learning. The ability to design learning is not just a lesson plan in the syllabus, but needs to be considered in the level of implementation of the syllabus in learning. Therefore, the quality of learning design will greatly depend on the ability of the lecturer in interpreting the formulation of learning objectives, presenting teaching materials, choosing delivery strategies, timing issues, media and others. This is in line with the provisions in article 1 paragraph 2 which states that lecturers are "professional educators and scientists with the main task of transforming, developing and disseminating science, technology, and art through education," (Government of the Republic of Indonesia, 2005, p.2).

The ability of the lecturer in designing learning becomes very important to note. This will be able to realize quality learning through the determination of appropriate learning strategies. Lecturers as one of the "learning agents" that focus on students act as learning partners, educational advisors, learning coaches, designers or evaluation designs, and as mentors in learning activities (Barringer, Pohlman, & Robinson, 2010). This will support Michael Fullan's opinion that *"Educational change depends on what teachers do and think"* (Fullan, 2007, p.129). The ability of the lecturer will be largely determined by his ability to carry out his professional duties and the innovative ideas he thinks about.

The idea of a solution related to the technical implementation of learning needs to be improved and supported by adequate learning tools. Improvements in the implementation of effective learning need to be done so that students can learn optimally. For the problem of learning patterns that are expected to be effective and fun, it is necessary to innovate and be creative in preparing online learning. One of the learning methods that can be adapted to online learning is the cooperative learning method. The use of cooperative learning methods which are generally carried out directly with the front roof, the ideas of using the cooperative method are carried out online.

Various studies that explain cooperative learning can be done online. An experimental study on the use of mixed e-learning (Belca) with a cooperative approach has an impact on the

effectiveness of pre-service teacher achievement, attitudes towards *e-learning* and cooperation compared to groups that do not use (El-deghaidy & Nouby, 2008). Research onlearning models *blended* can be used as a means of increasing student absorption of lecture material which reaches 78% compared to using only face-to-face learning models (Kuntoro & Rayandra, 2016). The use of on-line media can improve quality outcomes in teacher training in Mexico, Guatemala, Elevador and Spain (Jiménez & O'Shanahan, 2016). Research on the development of the TPACK model (*The Technological Paedagogical Content Knowledge*) can significantly increase the incorporation of syllabus design elements and improve teaching abilities (Brinkley-etzkorn, 2018). Another research is Castilo Merino D and Serradell-Lopez. E, (2014) showed that motivation is the main variable affecting student online performance, which confirms the importance of this factor as a source of educational efficiency (Merino & López, 2014). This means that the adoption of information and communication technology provides motivation for student performance in online learning.

This research actually draws inspiration from several similar studies, but with a different context that focuses on literature review to produce conceptual designs and procedural designs of online learning using cooperative learning methods. Cooperative learning is a learning method that designs students to learn together in a heterogeneous group. Many studies on cooperative learning have a positive impact on the process and learning outcomes. In research and development (*Research and Development),* this literature review is an initial research in the form of a conceptual design product and a procedural design for STAD type cooperative learning carried out in online learning.

RESEARCH METHODS

This study examines and designs STAD type cooperative learning to develop student learning activities. The objectives of this study are:

1. Produce a conceptual model of STAD type cooperative learning using online learning
2. Produce a STAD type cooperative learning procedure model that can be applied using online learning
3. Produce online learning components that apply the STAD-type cooperative learning method

RESULTS AND DISCUSSION

RESULTS

1. Concept of Cooperative Learning.

The concept of the word "*cooperative"* implies working together in achieving a common goal. Johnson & Johnson in Fortner stated that cooperative learning is small group learning so that students work together to maximize their own learning and each other (Fortner, 2002), (Gillies, Ashman, & Terwel, 2008). Cooperative learning is a set of teaching models in which students work in mixed ability groups to achieve group goals and certain social interactions (Kauchak & Eggen, 2016).

Cooperative learning activities that are built on fair cooperation and mutual understanding help each other. Johnson & Johnson in Fortner stated that cooperative learning is small group learning so that students work together to maximize their own learning and each other (Fortner, 2002), (Gillies, Ashman, & Terwel, 2008). Cooperative learning is a set of teaching models in which students work in mixed ability groups to achieve group goals and certain social interactions (Kauchak & Eggen, 2016). There is a difference in group learning with cooperative learning, namely in the interaction between students. In cooperative learning, it provides a specific role for student interaction, while in group work learning, it is not carried out. The following is the analysis of the cooperative learning concept, namely:

Table 1. Recap of the Cooperative Learning Concept Analysis.

NO	RESEARCHER	COOPERATIVE LEARNING CONCEPT DEFINITION	AUTHOR'S ANALYSIS
1	Slavin (1977)	Cooperative learning encourages students to interact actively and positively in groups.	The existence of social interaction through motivational and reward
2	Johnson & Johnson (1999)	Perspective of social cohesion and the existence of rewards to make group work effective	The existence of social interaction through rewards
3	Adams and Hamm (1994) the	existence of individual interaction with the environment through social context	The existence of social interaction within environment
4	DW Johnson, Johnson, and Stanne (2000)	Cooperative learning allows the acquisition of diverse learning outcomes, which include social competence	Cooperative learning for social competence learning outcomes
5	Arends (2008)	Cooperative learning is characterized by: mutual cooperation, ability groups heterogeneous, mixed ethnic and cultural groups, there are individual and group rewards.	The existence of cooperation in groups
6	Schunk (2012)	Cooperative learning aims to develop students' abilities in collaborating with others.	There is collaboration in the group

Cooperative learning activities provide an ideal way of setting up an environment for interaction between students and provide the guidance and support students need in developing students' social and emotional skills and understanding (Gillies & Ashman, 2003). Collaborative activities in learning occur with each other, communicate and interact with structures and arrangements that have been designed by educators. This learning activity is in the form of cooperative activities naturally in the sense of helping each other.

The goal to be achieved in learning is not only academic ability in terms of mastery of learning material, but the formation of cooperative abilities in understanding or mastering the learning material. To form cooperative abilities for students, cooperative learning is one of the choices of learning strategies.

There are 5 (five) basic elements in cooperative learning, namely: 1) positive interdependence, 2) individual accountability, 3) face-to-face promotion interaction, 4) social skills, 5) group processing (D. Johnson & Johnson, 1999), (Gillies et al., 2008, pp. 19–25). Arends (Arends, 2004) wrote the syntax of cooperative learning, with the following stages: 1) Delivering learning objectives; 2) Delivering presentations; 3) Divide students into cooperative groups; 4) Guiding group work; 5) Conduct evaluation and stage 6) Reward

learning Strategy is an activity to sequence the learning process that will be used with learning materials to produce certain learning outcomes. So, the concept of cooperative learning is a form of learning activity with mutual assistance activities between group members so that joint work occurs.

2. Cooperative Learning Design using Online

Learning is a natural process that leads to changes in what is known, what can be done and how to behave (Gagné, Briggs, & Wager, 2005). For that, more resources does not automatically mean learning that will be better results.

In this context, Clark in Michael Simonson, Sharon Smaldino, Michael Albright, Susan Zvacek (2012) confirms from the results of his research that the media does not have a direct impact on learning outcomes, but the learning materials and methods used can affect learning outcomes. The use of various kinds of information technology can encourage maximum achievement of learning outcomes if managed with appropriate learning materials and strategies.

To structure learning, there are five components of learning strategies, namely: (1) pre-learning activities which consist of building students' attention and motivation, explaining learning objectives, explaining prerequisite skills, (2) presenting information consisting of: teaching materials and tutoring, (3) student participation consists of: exercises and feedback, (4) tests consist of: initial skills test, pre-test, post-test, and (5) follow-up consists of: repetition for reinforcement and transfer considerations (Dick et al., 2015).

The same thing was stated by Arends in good learning planning must be able to involve allocating the use of time, choosing learning methods, creating student interest, and building a productive learning environment (Arends, 2004). Eggen and Kaucha stated that to prepare and organize learning activities involves the following process steps: 1) identification of topic components, concepts, principles and relationships that must be built between students; 2) the order of components; 3) prepare examples to build students' knowledge; 4) present examples from the most concrete first (Eggen & Kaucha, 2012).

In preparing cooperative learning plans using online means that you have to be familiar with online learning. The online learning system (on the network) is a learning system without face to face directly but is carried out online using the internet network. In the learning carried out, the lecturer must ensure that teaching and learning activities continue to run well. Online learning is done using a computer or laptop device that is connected to the internet network. Online learning is carried out at the same time between lecturers and students using social media such as WhatsApp (WA), Instagram, zoom applications or other media as learning media.

To design and design a good and effective online learning, it is necessary to consider the objectives and other learning components such as materials, learning strategies, methods and timing. Utilization of appropriate online devices or media in accordance with the material being taught to support learning objectives. The use of online for learning needs to be considered in order to make teaching and learning activities effective. For this reason, learning strategies are one of the important things to pay attention to in addition to other components that support effective learning.

Cooperative learning strategy as an option to support effective online learning. There are things that need to be understood in designing cooperative learning using online. The following compares the concept of cooperative learning type STAD (*Student Teams Achievement Division*) with other cooperative models so that researchers will determine the formula for designing cooperative learning. The following is described in the analysis table to determine the elements in cooperative learning, namely:

Table 2. Analysis of Cooperative Learning Elements

NO	SLAVIN (1977), STAD	OTHERMODELS SUCH AS: ARONSON, 1975, JIGSAW MODEL	RESEARCHER ANALYSIS
1	*Present goal and set* (delivering goals and motivating students).	Simple academic information	Stage conveying goals and motivating students
2	*Present information* (delivering information).	Group work and collaboration	Stages of presenting material
3	*Organize students into* learning *teams* (organizing students into study groups.	Group work and collaboration	Exploration stage through group work
4	*Assist team work and students* (helping group members work and study).	Students study the material in the expert group then help members of the original group study the material.	Conclusion and reinforcement stage
5	*Test on the materials* (evaluating).	Varies, can be in the form of weekly tests	Evaluation stage
6	*Provide and recognition* (Giving recognition or awards).	Other publications	Group award stage

Based on the conceptual description of cooperative learning and learning analysis, the syntax of the cooperative learning concept proposed by the researcher can be carried out.

The following are the steps of STAD type cooperative learning used in online learning, namely:

Table 3. Results of Cooperative Learning Design Using Online

No	Stages of	Activities Learning Activities	Time
1	Stage of conveying goals and motivating students (online)	- The lecturer conveys the learning objectives. It should be understood that in conveying the purpose to remind it is important to study the material. - Lecturers motivate students by expressing the benefits of studying the teaching material.	5'

2	Stage of presentation of material (online)	- Lecturers convey information on teaching materials. - Delivering assignments to cooperative groups. - Lecturers convey task information as material to be studied for group discussion work - The lecturer informs that the assignment material can be done well in groups. Assignment materials are given to develop knowledge and cooperation skills in accordance with the subject matter made.	15'
3	Exploration stage through group work (online)	- Lecturers divide study groups and work together (cooperative groups). - Each material is given in 1 cooperative group in turn discussing the given theme. - Each cooperative group - Divide students into cooperative groups (groups of 4-5 people according to differences in ability based on GPA) - The lecturer explained again about the role of each individual in the cooperative group. - From each discussion group to divide themselves, who is the group leader who is considered an expert, 1 person records it as a discussion resume, the others play an active role in the discussion group. This group will be a permanent group during the learning activities. - Each group set a time and set a time for discussion in *the chat forum*. - Ask students to conduct group discussions and cooperation in the chat forums provided. - Other students can attend and participate in the discussion process in the chat forum conducted by the group, but do not provide feedback. - Group members do not understand, then their group mates are required to provide an explanation again. - Lecturers function only to facilitate and monitor activities carried out in groups.	30'

4	Conclusion and reinforcement stage (online)	- Lecturers guide study groups when students do their assignments: - Remind participants to record the information discussed in the discussion forum. - Provide reinforcement by conveying ideas or ideas in discussion forums. - Guiding in making joint conclusions from the discussion problems discussed by the group - Ask the group to make a resume of the discussion material with each permanent group.	10'
5	Evaluation stage (online)	- Lecturers evaluate learning outcomes through presentations of student work - The lecturer asked the students to actively give feedback in the chat forum discussions of each group - Lecturers evaluate group activities during their discussions. Assessment using a rubric. - Remind students in groups to participate in discussion forums according to the time limit given. - Assessing the results of the discussion using thegroup work result checklist	20'
6	Group reward stage (online)	- Lecturers give awards from individual and group learning outcomes at the end of the presentation. - The form of appreciation is in the form of positive responses and supports the group for the results of the discussions given.	10'

DISCUSSION

Based on the analysis of conceptual studies which states that cooperative learning is a group learning activity in order to work together. Cooperative learning is carried out to facilitate student learning and can support effective learning. This is stated in the results of the assessment of the ability to apply the *On-line Course Applicability Assessment* (OCCA) course to assist students in the selection of courses (Ren, Dai, Zhao, Fei, & Gan, 2017). This finding provides reinforcement that the use of on-line devices to support learning or training activities. The application of cooperative learning in on-line and mixed environments is carried out using online discussions, blogs and learning experiences. (Johnson, 2013). This information explains that cooperative learning can be used in online and mixed environments to promote active learning for students.

Jirasak Shaekhow's research (2015) found that there are 5 steps in the development of cooperative learning with on-line media, namely: 1) context analysis, students and learning task problems; 2) design to determine learning objectives, identify learning sequences, assess students with context-based evaluation, 3) development of learning resources, 4) implementation to instructors and facilitation, and 5) evaluation of how students learn and their expectations with the role (Saekhow, 2015).

Various other studies that support the existence of cooperative learning include: that cooperative learning can improve students' social skills (Goodwin, 1999). Research has found that cooperative learning is beneficial for academic and social emotional improvement (Jones & Jones, 2008). Research by Polloway et al in Hanley and Harris states that cooperative learning can increase achievement, encourage student involvement, and increase motivation to learn (Hanley, Harris, & et.al, 2004). In addition, there are studies showing that programs that teach social and emotional skills have an impact on students' academic skills, motivation, attendance, and morale (Jolliffe, 2007).

Another finding is that cooperative learning is the choice of learning strategy in higher education which is stated as effective learning (Hanley et al., 2004). The benefits of cooperative learning at the tertiary level are in two categories: academic benefits and social emotional benefits (Jones & Jones, 2008). Cooperative learning approaches *(cooperative learning)* can form social interaction skills and values of pro-social so that it can contribute to the development of social interaction skills, social understanding and concern for others. In addition, cooperative learning strategies can change passive learning into active learning (RT Johnson & Johnson, 2008). Thus, it can be formulated that cooperative learning conducted online supports active and effective learning.

CONCLUSION

Cooperative learning is an alternative to be applied using online learning. The use of online social media if designed properly will foster active and fun learning. The design of cooperative learning using online is carried out in 6 (six) stages, namely the stage of conveying goals and motivating; delivering material, exploring group work, concluding and strengthening, evaluation and group award stages.

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